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## (54) HIGH STRENGTH COLD ROLLED STEEL SHEET AND ITS MANUFACTURE

## (57)Abstract:

PROBLEM TO BE SOLVED: To provide a high strength cold rolled steel sheet having  $\geq 780$  MPa tensile strength and  $\geq 70$  MPa amount of baking hardening and combining excellent stretch-flange formability, spot weldability, delayed fracture resistance, and impact resistance.

SOLUTION: A steel stock, having a composition in which 1.5~3.5%, by weight, Mn and 0.005~0.10% Nb are contained and further the amounts of C, Si, P, S, Al, and N are regulated to proper values, respectively, is heated to a temperature at which the amount of Nb unentered into solid solution becomes  $\geq 0.003\%$ , finish rolled at 950 to 800° C finish rolling delivery-side temperature, coiled at 700 to 400° C coiling temperature, and cold rolled. The resultant steel sheet is annealed at  $\geq 800$ ° C annealing temperature, rapidly cooled continuously down to  $\leq 350$ ° C at (15 to 150)° C/s cooling rate, cooled slowly down to  $\leq 200$ ° C at  $\geq 15$ ° C/min cooling rate, and then cooled rapidly down to room temperature. By this procedure, a structure composed essentially of fine bainitic structure of  $\leq 2.5$   $\mu\text{m}$  average grain size is provided.